22122878-70

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Anthony C. Zuppero et al. Art Unit: 1753

Serial No.: 10/625,801 Examiner: Diamond, Alan D.

Filing Date: July 23, 2003 Date: February 9, 2005

TITLE: GAS SPECIE ELECTRON-JUMP CHEMICAL ENERGY CONVERTER

Mail Stop Amendment Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

SIR:

1. In accordance with the duty of disclosure under 37 C.F.R. § 1.56 and in conformance with the procedures of 37 C.F.R. § § 1.97 and 1.98 and M.P.E.P. § 609, attorneys for Applicants hereby bring the following references, which are listed on the attached modified PTO Form No. 1449 to the attention of the Examiner. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being facsimile transmitted to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, Group Art Unit 1753 at (703) 872-9306 on February 9, 2005.

Amelia Finker

- 2. Applicants respectfully request that the following co-owned patents and co-pending applications be considered and made of record in the present application:
 - US Patent Nos. 6,114,620 (cited on PTO-892 by the Examiner); 6,218,608 (cited on PTO-892 by the Examiner); 6,222,116 (cited on PTO-892 by the Examiner); 6,268,560 (cited on PTO-892 by the Examiner); 6,327,859 (cited on PTO-892 by the Examiner); 6,700,056 (cited on PTO-892 by the Examiner); 6,678,305 (cited on PTO-892 by the Examiner); 6,649,823 (cited on PTO-892 by the Examiner); and US Patent Application Nos. 09/682,363 (cited on PTO-892 by the Examiner); 10/218,706 (cited on PTO-892 by the Examiner); 10/185,086 (cited on PTO-892 by the Examiner); 09/631,463; 10/759,341; 10/052,004 (cited on PTO-892 by the Examiner). The references cited in each of those patents and applications are listed on Form 1449 accompanying this information disclosure statement.
- 3. Copies of the references listed on the modified PTO form 1449 will follow under separate cover by first class mail due to their volume.
- 4. This information disclosure statement is being filed under 37 C.F.R. § 1.97(b)(4), before the mailing date of a first Office action after the filing of a request for continued examination under §1.114.
- 5. No fee is deemed necessary with the filing of these documents. If a fee is deemed necessary, we authorize the Commissioner of Patents and

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6. Trademarks to charge Deposit Account No.: 02-0393.

Respectfully submitted,

Eunhee Park
Registration No. 42,976
BAKER & McKENZIE
805 Third Avenue
New York, NY 10022
(212) 751-5700 telephone
(212) 759-9133 facsimile

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Complete if Known Application Number 10/625,801 INFORMATION DISCLOSURE Filing Date 7/23/2003 First Named Inventor STATEMENT BY APPLICANT Anthony C. Zuppero Art Unit 1753 (Use as many sheets as necessary) **Examiner Name** Alan D. Diamond Sheet Attorney Docket Number 22122878-70 U. 8. PATENT DOCUMENTS Cite No. Document Number Publication Date
MM-DD-YYYY Inidals* Name of Patentae or Pages, Columns, Lines, Where Applicant of Cited Document Number-Kind Code Resemb Relevant Passages or Relevant Figures Appear 4763579 06-1988 Murphy UE- 5525041 2 06-1996 Deak US- 5299422 04-1994 Nakagawa et al. 4 5317876 05-1994 Nakagawa et al. FOREIGN PATENT DOCUMENTS Examiner Foreign Patent Document Publication Name of Patentes or Pages, Columns, Unes. Applicant of Cited Document Where Relevant Passages MM-DD-YYYY Country Code "Number 1" Kind Code (if known) Or Relevant Figures Appear Daniner Simalure Date *EXIMINER: filled if reference considered, whether or not citation is in conformance with MPEP 609. Onew line through citation if not in conformance and not considered, include copy of this form with next communication to applicant. "Applicant's unique citation designation number (optional). "See Kinds Codes of USPTO Patent Documents at www.uspto.nov or MPEP 901.04. "Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). For the appropriate symbols its indicated on the document under WIPO Standard ST.16 if possible. "Applicant is to place a check mark here if English language

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPFO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is selfmated to take 2 hours to complete, including gathering, propering, and submitting the completed application form to the USPFO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief information Officer, U.S. Patent Trademark Office, P.D. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND

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Office of Information unless if control as a valid OMB control number. PTO/SB/08A (08-03) Complete if Known Application Number INFORMATION DISCLOSURE 10/625,801 Filing Date STATEMENT BY APPLICANT 7/23/2003 First Named inventor Anthony C. Zuppero (Use as many sheets as necessary) Art Unit 1753 **Examiner Name** Sheet Alan D. Diamond Attorney Docket Number

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¹ Unique citation designation number. 2 See attached Kinds of U.S. Patent Documents. 3 Enter Office that issued the document, by the twi-letter * unique citation designation number. * oversuscried raises of u.o. Falant Documents.
— cate (WIPO Standard ST.3). * For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial running of the patent document. * kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. * App & cant be to place a check mark here if English language Translation is attached.

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First Named Inventor Art Unit	Anthony C. Zuppero
Examiner Name Attorney Docket Number	Alan D. Diamond 22122878-70

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1 Applicant's unique citation designation number (optional).

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Attorney Docket Number

Examiner Initials	Cite Nor	Include name of the author (in CAPITAL LETTERS), life of the article (when appropriate), title of the Nem (book, magazine, journel, sartal, symposium, călalog, etc.), clade, page(s), volume-lissue number(s), number(s), number city and/or country where published	72
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet

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.Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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Complete If Known Approved for use through 07/31/2006. OMB 0651-0031 Application Number 10/625,801 INFORMATION DISCLOSURE Filing Date 7/23/2003 First Named Inventor STATEMENT BY APPLICANT Anthony C. Zuppero Art Unit 1753 (Use as many sheets as necessary) **Examiner Name** Alan D. Diamond Sheet Attorney Docket Number 22122878-70 OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS include name of the author (in CAPITAL LETTERS), tile of the article (when appropriate), title of the Cite Nem (book, magazine, journal, serial, sympostum, catalog, etc.), date, page(s), volume-issue Infliats T2 cumber(s) nublisher, city and/or country where published ENGSTROM et al., Comparing the Vibrational Properties of Low-Energy Modes of la Molecular and an Atomic Adsorbate: CO and O on Pt(111), Journal of Chemical [⊋]hysics, Vel. 112, No. 4 (2000) GLAVIN et al., Generation of High-Frequency Coherent Acoustic Phonons in a Weakly Coupled Superlattice, Applied Physics Letters, Vol. 74, No. 23 (1999) RIZOMAN, SIGe/SI Thz Laser Based on Transitions Between Inverted Mass Same as cite no. 28 Ight-Hole and Heavy-Hole Subbands, Applied Physics Letters, Vol. 78, No. 4 (2001) ERMOSHIN et al., Vibrational Energy Relaxation of Adsorbate Vibrations: A 80 theoretical Study of the H/Si(111) System, J. Chem. Phys. 105 (20) (1996. GLAVIN et al., Acoustic Phonon Generation in A Superfattice Under the Hopping Perpendicular Transport, United Nations Educational Scientific and Cultural 81 Organization-ånd-International-Atomic-Energy-Agency-(1998). 82 GERGEN et al., Chemically Induced Electronic Excitations at Metal Surfaces, Sciencé, Vol. 294 (2001). HAGSTON et al., Simplified Treatment of Scattering Processes in Quantum Well Structures, Journal of Applied Physics, Vol. 90, No. 3 (2001). IARRISON et al., Room Temperature Population Inversion in SiGe TASER designs 84 Same as cite no. 31 HARRISON of al. The Carrier Dynamics of Terhenz Intersubband Lasers, Some Publishing Company (1999) 85 Same as cite no. 60 AARRISON et at., Population-Inversion and Gain Estimates for a Semiconducor 86 Taser HARRISON et al., Theoretical studies of Subband Carrier Lifelimes in an Optically 87 Pumped Three-Level Terahertz Laser, Superlattices and Microstructures, Vol. 23, No. 2 (1998) Same as cite no. 30 Examiner Date Sign sture

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Complete if Known Application Number 10/625,801 Filing Date 7/23/2003 First Named Inventor Anthony C. Zuppero Art Unit 1753 **Examiner Name** Alan D. Diamond Attorney Docket Number 22122878-70

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Application Number 10/625,801 Filing Date 7/23/2003 First Named Inventor Anthony C. Zuppero Art Unit 1753 Examiner Name Alan D. Diamond **Attorney Docket Number** 22122878-70

Examiner Initials	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, setalog, etc.), date, page(s), volume-issue Title mumber(s), cublisher, city and/or country where published.
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Complete if Known Application Number 10/625,801 Filing Date INFORMATION DISCLOSURE 7/23/2003 First Named Inventor Anthony C. Zuppero STATEMENT BY APPLICANT Art Unit 1753 (Use as many sheets as necessary) Examiner Name Alan D. Diamond Sheet Altorney Docket Number 22122878-70 OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS include name of the author (in CAPITAL LETTERS), title of the stitcle (when appropriate), title of the item (book, magazine, journel, serjal, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. Examiner (Ro Initials" 72 REE, J. et al., "Dynamics of Gas-Surface Interactions: Reaction 2.74 of Atomic Oxygen with Chemisorbed Hydrogen on TUNGSTEN," Journal of Physical Chemistry, Vol. 101 (#25), pp. 4523 -4534, June 19, 1997. REE, J. et al., "Reaction of atomic oxygen with adsorbed carbon monoxide on a platinum surface," Journal of Chemical 275 Physics, Vol. 104, Issue 2, pp. 742 - 757, January 8, 1996. NOLAN, P.D. et al., "Molecularly chemisorbed intermediates to Same as 276 oxygen adsorption on Pt(111): A molecular beam and electron cite no. 107 energy-loss spectroscopy study," Journal of Chemical Physics, Vol. 111, No. 8, pp. 3696 - 3704, August 22, 1999. NOLAN, P. D. et al., "Translation Energy Selection of Molecula

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Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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STATEMENT BY APPLICANT	First Named Inventor	Anthony C. Zuppero
(Use as many shoots as necessary)	Art Unit	1753
	Examiner Name	Alan D. Diamond
Sheet 42 of 62	Attorney Docket Number	22122878-70

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U.S. Palent and Trademark Office; U.S. DEPARTMENT OF COMMERCE Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number. Substitute for form 1449/PTO Complete if Known **Application Number** 10/625,801 INFORMATION DISCLOSURE Filing Date 7/23/2003 First Named Inventor STATEMENT BY APPLICANT Anthony C. Zuppero Art Unit 1753 (Use as many sheets as necessary) Examiner Name Alan D. Diamond Sheet of i Altorney Docket Number 22122878-70 OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS include name of the author (in CAPITAL LETTERS), tide of the article (when appropriate), title of the Rem (book, magazine, journal, sedal, symposium, calabog, etc.), date, page(s), volume-issue number(s), Examiner Cita lollals' tlo.1 publisher, city and/or country where published. BONN, M. et al., "Phonon-Versus Electron-Mediated Desorption 316 and Oxidation of CO on Ru(0001), Science, Vol. 285, No. 5430; Same as Issue of 13 August 1999, pp. 1042-1045. cite no. 280 DAVIS, J. E. et al., "Kinetics and dynamics of the 31 dissociative chemisorption of oxygen on Ir (111), " J. Chem. Same as Phys., 107 No. 3, 15 July 1997, pp. 943-951. cite no. 65 GADZUK, J. W., "Hot-electron femtochemistry at surfaces: on 318 the role of multiple electron processes in desorption, " Chemical Physics, Vol. 251, year 2000, pp. 87-97. GADZUK, J. W., *Resonance-assisted hot electron femtochemistry 519 at surfaces," Physical Review Letters, May 27, 1996, Vol. 76, Issue 22, pp. 4234-4237. GE, N.-H. et al., "Femtosecond Dynamics of Electron Localization at Interfaces, " Science, Vol. 279, No. 5348, 320 Issue of 9 Jan 1998, pp. 202-205. GAO, Shiwu, "Quantum kinetic theory of vibrational heating and 321 bond breaking by hot electrons, * Physical Review B, Vol. 55, No. 3, 15 Jan 1997-I, pp. 1876-1886. HOU, H. et al., "Enhanced Reactivity of Highly Vibrationally Excited Molecules on Metal Surfaces," Science, Vol. 284, No. 5420, Issue of 4 Jun 1999, pp. 1647-1650. NIENHAUS, H. et al., "Direct detection of electron hole pairs generated by chemical reactions on metal surfaces," Surface Same as Science 445 (2000) pp. 335-342. cite no. 103 NIENHAUS, H. et al., "Selective H atom sensors using ultrathin 324 Ag/Si Schottky diodes, " Applied Physics Letters, June 28, Same as 1999, Vol. 74, Issue 26, pp. 4046-4048. cite no. 106 GAILLARD, Frederic et al., "Hot electron generation in aqueous solution at oxide-covered tantalum electrodes. Reduction of 325 methylpyridinium and electrogenerated chemiluminescence of Ru(bpy)32+, " Journal of Physical Chemistry B., Vol. 103, No. Şame as cite no. 306 4, January 28 1999, pp. 667-74. ENGSTROM, Ulrika and RYBERG, Roger, *Comparing the vibrational properties of low-energy modes of a molecular and an atomic 3:26 adsorbate: CO and O on Pt (111), " Journal Of Chemical Physics, Same as cite no. 77 Vol. 112, No. 4, 22 January 2000, pp. 1959-1965. Examiner Date Signature

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	Altorney Docket Number 22122878-70

		OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS	
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(Use as many sheets as necessary)	Art Unit	1753
	Examiner Name	Alan D. Diamond
Sheet 46 of 62	Attorney Docket Number	22122878-70

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	336	AGRANOVICH, V. M. et al., "New concept for organic LEDs: non-radiative electronic energy transfer from semiconductor quantum well to organic overlayer", Elsevier Science, Synthetic Metals, 2001, Vol. 116, pages 349-351.	
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	337	US-0,537,829	03-2003	Zarling et al.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Complete if Known Application Number 10/625,801 Filing Date 7/23/2003 First Named Inventor Anthony C. Zuppero Art Unit 1753 Examiner Name Alan D. Diamond Attorney Docket Number 22122878-70

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Complete if Known Application Number 10/625,801 Filing Date 7/23/2003 First Named Inventor Anthony C. Zuppero Art Unit 1753 **Examiner Name** Alan D. Diamond Attorney Docket Number | 22122878-70

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	357	US-5,736,410	04-1998	Zarling et al.	
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	359	US-5,674,698	10-1997	Zarling et al.	
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	Filing Date	7/23/2003			
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	363	US- 2002/0121088 A1	09-05-2002	- Zuppero et al.	Same as cite no. 177
	364	US-4,012,301	03-1977	Rich et al.	Same as cite no. 12
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Co	implete if Known
Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor Art Unit	Anthony C. Zuppero
Examiner Name	1753
Attomey Docket Number	Alan D. Diamond
Attorney Docket Number	22122878-70

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Substitute for form 1449/PTO Substitute for form 1449/PTO Complete If Known Application Number 10/625,801 INFORMATION DISCLOSURE **F**岬ng Date 7/23/2003 STATEMENT BY APPLICANT First Named Inventor Anthony C. Zuppero Art Unit 1753 (Use as many sheets as necessary) **Examiner Name** Alan D. Diamond Sheet Altomey Docket Number 22122878-70

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Complete if Known Application Number 10/625,801 Filling Date INFORMATION DISCLOSURE 7/23/2003 First Named Inventor STATEMENT BY APPLICANT Anthony C. Zuppero Art Unit 1753 (Use as many sheets as necessary) Examiner Name Alan D. Diamond Sheet Attorney Docket Number | 22122878-70 OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the Cite Examiner item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue Initials' HARRISON, P., SOREF, R.A.; Population-inversion and gain estimates for semiconductor 424 TASER. Same as cite no. 29 HARRISON, P., SOREF, R.A.; Room temperature population inversion in SiGe TASER design. 42 Same as cite no. 31 HOHLFELD, J., WELLERSHOFF, S.-S, J., GUDDE, U., CONRAD, V., JAHNKE, E., 426 MATTIAS; Electron and lattice dynamics following optical excitation of metals; Chemical Physics 251(2000). Pg: 237-258. HOU, H., HUANG, Y., GOULDING, S.J., RETTER., C.T., AUERBACH, D.J., WODRKE, A.M.; Dierect multiquantum relaxation of highly vibrationally excited NO in collisions with O/Cu(111); Same as cite no. 214 JONGMA, RIENK T., WODTKE, ALEC M.; Fast multiquantum vibrational relaxation of highly vibrationally excited O2; Journal of Chemical Physics; Volume 111, Number 24; 22 December 1999; Pgs: 10957-10963. KAWAKAMI, R.K., ROTENBERG, E., CHOI, HYUK J., ESCORCIA-APARICIO, ERNESTO J., BOWEN, M.O., WOLFE, J.H., ARENHOLZ, B., ZHANG, Z.D., SMITH, N.V., QIU, Z.Q., Same as cite no. 92 Quantum-well states in copper thin films; Letters to nature; Volume 398; 11 March 1999; www.nature.com. MD. GOLAM MOULA, SURGIO WAKO, GENGYU CAO, IVAN KOBAL, YUICHI OHNO, TATSUO MATSUSHIMA; Velocity distribution of desorbin CO2 in CO oxidation ion Pd(110)

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STATEMENT BY APPLICANT	First Named Inventor	Anthony C. Zuppero
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	Examiner Name	Alan D. Diamond
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	439	G. SUN et al., "Phonon-pumped terahertz gain in n-type GaAs/AlGaAs Superlattices, Applied Physics Letters, Volume 78, Number 22, Pages 3520-3522. Same as cite no.
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<u> </u>	454		09-05-2000	Zuppero et al
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